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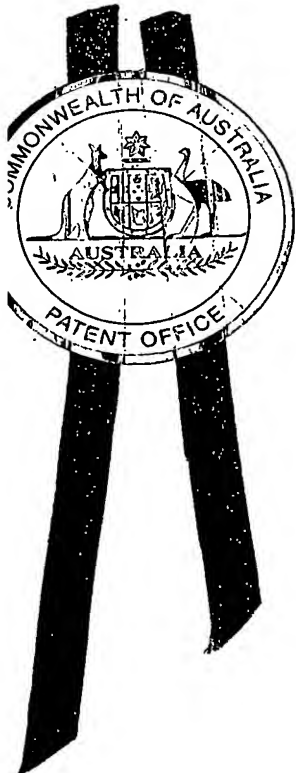
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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND
SALES hereby certify that annexed is a true copy of the Provisional specification
in connection with Application No. 2002950762 for a patent by YVONNE
SYLVIA GRIFFITS and JOHN PHILIP GRIFFITS as filed on 14 August 2002.



WITNESS my hand this
Twenty-second day of August 2003

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Title:

Identification and Selection of Mechanical Keys.

Introduction:

The use of a mechanical key means to unlock a mechanical and/or electronic lock means is in widespread use. The average person usually has a plurality of mechanical keys. Each key in said plurality usually serves a different function (eg the first may unlock the front door of the house, the second the garage door). As a non-limiting example, said plural keys may be arranged as one at least bunches on one at least key rings.

Said mechanical key means preferably may include electronic means.

The term mechanical key(s) and/or mechanical key means may also be referenced as key(s) in this document.

The part of the key that is usually inserted into a lock may be referenced as the key shaft in this document. Said shaft usually has a top edge and a bottom edge and two faces. In this document the traditional key may be considered as having its serrations (teeth) cut into the bottom edge. Double sided keys may have serrations on both the top and bottom edge.

One usually has access to plural keys - a plurality with a tendency to increase over time. The function of one at least of said keys may be forgotten.

- A preferred non-limiting objective of the present invention seeks to describe a means to identify the function of one at least keys by the use of electronic and/or automated means.

When one at least keys needs to be selected from a group of keys (eg, as may be found on a key ring), it may be difficult to select the appropriate key for a particular lock, particularly when the keys have similar physical appearance, a task that may be made more difficult at night. One may need to try plural keys in a lock before determining the correct one.

- Another preferred non-limiting objective of the present invention is to describe a means to assist the selection of one at least keys from a group of keys. Said means preferably includes electronic and/or automated means. The preferred embodiment of the invention illuminates one at least light emitting means coupled to the selected key.

Description of the Invention.

It is preferable that the invention includes one at least:-

- *Key Control Means (KCM)*, that as a non-limiting example, preferably may be integrated within one at least known art key tag means;

and/or

- *Local Key Mean (LKM)*, that as a non-limiting example is preferably coupled to one at least mechanical key means.

- It is preferable that one at least LKM ID Means is coupled to one at least LKM's. Said LKM ID Means preferably includes electronic means. A non-limiting example of said electronic means preferably includes one at least bit sequences stored in electronic format (preferably in a non-volatile memory storage means). It is preferable that said LKM ID means is unique to a particular LKM. Said LKM ID Means preferably provides a non-limiting means of identifying particular mechanical keys. It is preferable that part at least of said LKM is coloured and that in a plurality of LKM's there are a plurality of different coloured LKM's. A non-limiting application of differently coloured LKM's may include the provision of additional identifying means for their coupled keys.

A) As a non-limiting example, said Key Control Means preferably includes:-

1) *KCM Key ID Storage Means* to store one at least LKM ID Means:-

- It is preferable said KCM Key ID Storage Means includes library means and/or database means stored, in part at least, in digital format, preferably in semiconductor memory storage means.
- It is preferable said KCM Key ID Storage Means stores one at least said LKM ID Means in electronic means. A non-limiting example of said electronic means preferably includes one at least bit sequences stored in electronic format (preferably in non-volatile memory storage means). It is preferable that the bit sequence(s) stored in said KCM Key ID Storage Means equates to the corresponding bit sequence(s) stored in the associated LKM(s).
- It is preferable that one at least said LKM ID means stored in said KCM Key ID Storage Means is coupled to one at least *Key Description Means*.

- Said Key Description Means is preferably stored electronically in said KCM Key ID Storage Means.
- Said key description means preferably describes the function of the one at least keys coupled to one at least LKM's,
 - wherein, said one at least LKM's are preferably identified by one at least LKM ID Means stored in said KCM Key ID Storage Means.

and/or

2) *Key ID Edit Means* to input LKM ID information into said KCM Key ID Storage Means, and/or to edit information after input.

- Non-limiting examples of input means for said LKM ID information preferably includes one at least of:-
 - Voice information input by one at least humans into a microphone means coupled to said key control means;
 - Said voice information is preferably processed by a voice recognition means coupled to said KCM;
 - Information input by a keyboard means coupled to said key control means;
 - Information input by I/R means;
 - Said I/R means source is preferably coupled to one at least LKM.
 - Information input by R/F means;
 - Said R/F means source is preferably coupled to one at least LKM;
 - Information input by visible light means;
 - Said visible light means source is preferably coupled to one at least LKM;
 - Information input by fibreoptic means;
 - Said optical means source is preferably coupled to one at least LKM;
 - Information input by electrical conductor means;
 - Said electrical conductor means source is preferably coupled to one at least LKM.
- Non-limiting examples of the source of said Key ID input information preferably includes one at least of:-
 - Human and/or machine readable indicia coupled to one at least mechanical key means;
 - Digitally stored and/or electronically accessible information within one at least LKM.

and/or

3) *Key Description Edit Means* to input key description information into said KCM and/or to edit said information. Said key description information is preferably linked to one at least LKM ID means stored in said KCM Key ID Storage Means.

- Said key description information preferably describes the function (eg garage door lock) of the mechanical key(s) coupled to the LKM identified by said LKM ID.
- Non-limiting examples of said means to input said key description information preferably includes one at least of:-
 - Voice information input by one at least humans into a microphone means coupled to said key control means;
 - Said voice information is preferably processed by a voice recognition means coupled to said KCM;
 - Information input by a keyboard means coupled to said key control means;
 - Information input by I/R means;
 - Said I/R means source is preferably coupled to one at least LKM.

- Information input by R/F means;
 - Said R/F means source is preferably coupled to one at least LKM;
- Information input by visible light means;
 - Said visible light means source is preferably coupled to one at least LKM;
- Information input by fibreoptic means;
 - Said optical means source is preferably coupled to one at least LKM;
- Information input by electrical conductor means;
 - Said electrical conductor means source is preferably coupled to one at least LKM.

- Non-limiting examples of the source of said Key ID input information preferably includes one at least of:-
 - Human and/or machine readable indicia coupled to one at least mechanical key means;
 - Digitally stored and/or electronically accessible information within one at least LKM;
 - Trial and error (eg trying one at least keys in one at least locks);
 - Human knowledge.

and/or

4) *Key ID Comparison Means* wherein one at least LKM ID Means is preferably input to said Key Control Means and preferably compared (as a non-limiting means) with one at least LKM ID Means previously stored (eg using Key ID Edit Means) within said KCM Key ID Storage Means. It is preferable that said Key ID Comparison Means includes one at least of:-

- Means to determine and/or output the descriptive information linked to said previously stored LKM ID Means when said LKM ID Means matches said Input LKM ID Means;
- Means to output information that no match for said Input LKM ID was found;
- Means to output information that no descriptive information is linked to said previously stored LKM ID Means.

- Non-limiting examples of said means to output information of said a) and/or b) and/or c) preferably includes display means (eg LCD) and/or sound output means (eg speaker means);

- It is preferable that said key description means may include data stored in electronic format that is representative of one at least ASCII sequences describing said key function. It is preferable that said ASCII sequence may be used, as non-limiting examples to:-

- display a human readable message on display means (eg, LCD) coupled to said key control means; and/or
- reference a sound library that may be used to produce an analogue signal, that may cause a speaker means coupled to said control means to output sound that describes said key function.

- It is preferable that said key description means may include data stored in electronic format that is representative of one at least digital sequences (eg as obtained from a sound digitizer) that may be supplied to a D/A converter to produce analogue output that may cause a speaker means coupled to said control means to output sound that describes said key function.

- Non-limiting examples of means to input LKM ID Means to said Key ID Comparison Means preferably includes one at least of:-

- Voice information input by one at least humans into a microphone means coupled to said key control means;
 - Said voice information is preferably processed by a voice recognition means coupled to said KCM;
- Information input by a keyboard means coupled to said key control means;
- Information input by I/R means;
 - Said I/R means source is preferably coupled to one at least LKM.

- Information input by R/F means;
 - Said R/F means source is preferably coupled to one at least LKM;
- Information input by visible light means;
 - Said visible light means source is preferably coupled to one at least LKM;
- Information input by fibreoptic means;
 - Said optical means is preferably coupled to one at least LKM;
- Information input by electrical conductor means;
 - Said electrical conductor means is preferably coupled to one at least LKM.
- Non-limiting examples of the source of said Input LKM ID Means preferably includes one at least of:-
 - Human and/or machine readable indicia coupled to one at least mechanical key means;
 - Digitally stored and/or electronically accessible information within one at least LKM.

5) *Key Description Comparison Means* wherein one at least Key Description Means is preferably input to said Key Control Means and preferably compared (as a non-limiting means) with one at least Key Description Means previously stored (eg using Key Description Edit Means) within said KCM Key ID Storage Means;

It is preferable that said Key Description Comparison Means includes one at least of:-

a) Means to determine that the comparison between, said Input Key Description Means and said Previously Stored Key Description Means, is valid.

- If valid, preferably a means to determine the LKM ID Means linked to said Previously Stored Key Description Means;
- and

- A means to signal the LKM that is linked to said LKM ID Means that it;

b) Means to output information that no match for said Input LKM ID was found;

c) Means to output information that no descriptive information is linked to said previously stored LKM ID Means.

- Non-limiting examples of said means to output information of said a) and/or b) and/or c) preferably includes display means (eg LCD) and/or sound output means (eg speaker means);
 - It is preferable that said key description means may include data stored in electronic format that is representative of one at least ASCII sequences describing said key function. It is preferable that said ASCII sequence may be used, as non-limiting examples to:-
 - display a human readable message on display means (eg, LCD) coupled to said key control means; and/or
 - reference a sound library that may be used to produce an analogue signal, that may cause a speaker means coupled to said control means to output sound that describes said key function.
 - It is preferable that said key description means may include data stored in electronic format that is representative of one at least digital sequences (eg as obtained from a sound digitizer) that may be supplied to a D/A converter to produce analogue output that may cause a speaker means coupled to said control means to output sound that describes said key function.

- Non-limiting examples of means to input LKM ID Means to said Key ID Comparison Means preferably includes one at least of:-

- Voice information input by one at least humans into a microphone means coupled to said key control means;
 - Said voice information is preferably processed by a voice recognition means coupled to said KCM;
- Information input by a keyboard means coupled to said key control means;

- Information input by I/R means;
 - Said I/R means source is preferably coupled to one at least LKM.
- Information input by R/F means;
 - Said R/F means source is preferably coupled to one at least LKM;
- Information input by visible light means;
 - Said visible light means source is preferably coupled to one at least LKM;
- Information input by fibreoptic means;
 - Said optical means is preferably coupled to one at least LKM;
- Information input by electrical conductor means;
 - Said electrical conductor means is preferably coupled to one at least LKM.
- Non-limiting examples of the source of said Input LKM ID Means preferably includes one at least of:-
 - Human and/or machine readable indicia coupled to one at least mechanical key means;
 - Digitally stored and/or electronically accessible information within one at least LKM.

and/or

6) *KCM Power Means* to power said key control means, non-limiting examples of said means to power preferably include a battery means;

- Non-limiting examples of said battery means preferably may include one at least of:-
 - a lithium battery means;
 - Rechargeable battery means;
 - Replaceable battery means.

and/or

7) *KCM Sound Input Means* to input sounds to one at least KCM. A non-limiting example of said input sound preferably includes human voice input.

- A non-limiting examples of said input sound means preferably includes an electret microphone coupled to said key control means.

and/or

8) *KCM Keyboard Input Means* to key indicia means into one at least KCM.

- A non-limiting example of said indicia means preferably includes ASCII information.
- Said keyboard means preferably includes one at least electromechanical key switches.
 - one at least said key switches preferably may be time multiplexed to input a plurality of different commands and/or data.
 - Said multiplexed preferably includes a flashing light means (eg LED) to facilitate data entry.

and/or

9) *KCM Security Means* to encrypt and/or decrypt part at least of the information stored within means coupled to said key control means.

and/or

10) *KCM Password Means* to password protect access to one at least functions provided by said key control means.

and/or

11) *KCM Command Selection Means*:-

- Non-limiting examples of command input means preferably includes one at least of:-
 - Voice input means;
 - Key input means (eg electro-mechanical push button).

- Non-limiting examples of said commands preferably include one at least of:-
 - Retrieve key ID means from one at least LKM to one at least KCM;
 - Said retrieve preferably may include automated means and/or human input of information;
 - Input New Key Description Means and couple with one at least Key ID Means;
 - Input Key Description information,
 - and
 - find matching previously stored Key Description Means,
 - and
 - determine Key ID means coupled to said key description information,
 - and
 - address the LKM matching said Key ID means to illuminate;

and/or

12) One at least functions, of known art key ring tags;

and/or

13) One at least other control means, non-limiting examples of which preferably include one at least of:-

- remote locking/unlocking means for one at least motor vehicles; and/or
- control of one at least garage doors; and/or
- passwords for Internet access and/or secure commerce; and/or
- medical records; and/or
- secure encryption and/or decryption of information for fiancé means; and/or
- electronic prescriptions; and/or
- automated removal of garments.

and/or

14) A means to store information that may facilitate return of lost keys:-

- Non-limiting examples of said stored information may include, as non-limiting examples:-
 - name, and/or
 - address, and/or
 - telephone number, and/or
 - Email address.
- Said information is preferably protected by encryption;
 - It is preferable that reversal of said protection means is restricted;
 - It is preferable that one at least authorised service providers may be able to reverse said protection.
- It is preferable that lost keys and/or encrypted information pertaining to said keys are provided to one at least authorised service providers to facilitate return of lost keys.

and/or

15) A means to store information that may facilitate duplication of keys:-

- Non-limiting examples of said stored information preferably include digitally stored information that may assist a key cutting machine to replicate one at least keys;
- Said stored information preferably may be obtained from one at least known art electronic means of determining key shape information.
- Said information is preferably protected by encryption and/or one at least passwords;
 - It is preferable that reversal of said protection means is restricted;
 - It is preferable that one at least authorised service providers may be able to reverse said protection.
- It is preferable that said stored information may be provided in part at least by the key supplier and/or key cutting service;

- It is preferable that said provided may include the transfer of information to said KCM by electronic means;
- It is preferable said stored information may be backed up in one at least user controlled data processing means (eg personal computer).
- It is preferable said stored information may be sent via the Internet.

and/or

16) *KCM Sound Output Means* to output sounds from one at least KCM. A non-limiting example of said output sound means preferably includes a speaker means.

- A non-limiting examples of said speaker means preferably includes piezo-electric means.

and/or

17) *KCM Display Means* to output text and/or graphics information.

- A non-limiting example of said display means preferably includes one at least LCD means.

B) It is preferable that the invention includes one at least **Local Key Means (LKM)**. As a non-limiting example, said local key mean preferably includes:-

One at least ID means, a non-limiting example of which preferably include:-

- One at least bit sequences stored in electronic format (preferably in a non-volatile memory storage means); and/or
- One at least machine readable codes, non-limiting examples of which preferably include:-
 - Bar codes and/or other indicia printed on the one at least keys and/or means attached to one at least keys.
 - A non-limiting example of said machine readable may include the use of imaging means (eg CMOS image sensors).

- It is preferable that said ID means is unique to a particular LKM.

It is preferable that one at least keys is coupled to one at least LKM, with the preferred arrangement to have each distinct key coupled to its own unique LKM.

- It is preferable that part at least, of one at least LKM, may be coupled to one at least keys after manufacturer of said key. Non-limiting examples of said after manufacture preferably include by the:-
 - consumer, and/or
 - manufacturer, and/or
 - wholesaler, and/or
 - retailer (eg the business that cuts keys).
- It is preferable that part at least of one at least LKM may be coupled to one at least keys during manufacture of said key.

It is preferable that one at least LKM are coupled to a power source.

- Non-limiting examples of said coupled to a power source preferably may include one at least of:-
 - Integrated within and/or attached to said LKM; and/or
 - Connected by electrical conductor means to said KCM.
- Non-limiting examples of said power source preferably may include one at least of :-
 - Battery means;
 - Non-limiting examples of said battery means preferably may include one at least of:-
 - a lithium battery means;
 - Rechargeable battery means;
 - Replaceable battery means.

- Photo-electric (eg solar cell) means;
 - A non-limiting example of a light source for said photo-electric means preferably includes a light means coupled to said KCM

It is preferable that one at least LKM are coupled to a means to indicate that said LKM and/or one at least keys coupled to said LKM, have been addressed.

- Said addressing is preferably by one at least KCM.
- Said addressing preferably includes the transfer of a digital sequence (of one at least bits) from said KCM to one at least LKM,
 - wherein, said digital sequence preferably matches, in part at least, one at least ID means coupled to said LKM,
 - wherein, said coupled ID means preferably include a digital sequence (of one at least bits).
- Said means to indicate preferably includes a visual means; and/or sound means and/or vibrating means;
 - Said visual means preferably includes the generation of light, as a non-limiting example, the illumination of one at least semiconductor light generating means (eg LED and/or LEP and/or OLED);
 - It may be difficult to locate the insertion point in a lock to place a key, especially at night - it is preferable said visual means may direct light in a direction that may be used to illuminate the target lock; as a non-limiting example, this may be to illuminate the lock at night to facilitate insertion of the key;
 - Said direction preferably includes along the long axis of said key and/or towards the key tip (eg initial insertion point of a key);
 - Another difficulty that may be encountered when attempting to insert a key into a lock is the orientation to hold the key prior to and/or during insertion into said lock. Although the key opening in a lock may be arranged such that the plane of the faces of the key shaft are orientated for any angle relative to the ground, some locks may require said plane to be oriented vertically to ground (Type 1 Arrangement), with a second arrangement requiring said faces to be parallel to the ground (Type 2 Arrangement). In said Type 1 arrangement the top edge may be furthest from the ground in some arrangements, and closest to the ground in other arrangements. In Type 2 arrangements the top edge may be closest to the left side of the lock in one arrangement and to the right in another arrangement;
 - It is a preferable non-limiting objective of the present invention to describe a means, wherein one at least frequencies of light may be used to facilitate orientation of a key relative to a lock, prior to and/or during insertion of said key in said lock.
 - It is preferable that said generation of light includes light of plural frequencies (eg red and green).
 - It is preferable that a first colour of light (eg red) is used to facilitate identification of the edge of the key shaft that is oriented furthest from the ground in said Type 1 arrangements and/or closest to the left side of the lock in said Type 2 arrangement.
 - It is preferable that a second colour of light (eg green) is used to facilitate identification of the edge of the key shaft that is oriented closest to the ground in said Type 1 arrangements and/or closest to the right side of the lock in said Type 2 arrangement.
 - It is preferable that the invention describes a means to determine if one at least keys is to be inserted into one at least locks in a Type 1 arrangement and/or a type 2 arrangement. A non-limiting example of said means to determine preferably includes static light generation for said Type 1 arrangement and one at least pulsing light sources for said Type 2 arrangement.
- It is preferable that one at least LKM are coupled to a means to receive and/or decode said address information,
 - non-limiting examples of said means to receive address information preferably may include one at least of:-

- Information input by I/R means;
 - Said I/R means source is preferably coupled to one at least KCM
 - Information input by R/F means;
 - Said R/F means source is preferably coupled to one at least KCM;
 - Information input by visible light means;
 - Said visible light means source is preferably coupled to one at least KCM;
 - Information input by fibreoptic means;
 - Said optical means source is preferably coupled to one at least KCM;
 - Information input by electrical conductor means;
 - Said electrical conductor means source is preferably coupled to one at least KCM.
 - It is preferable that one at least LKM are coupled to a means to transfer to a low power mode.
 - It is preferable that said low power mode may transfer to operating power mode in response to an external signal;
 - It is preferable that said external signal may include as a non-limiting example, one at least of I/R and/or R/F and/or optical means;
 - It is preferable that said external signal originates from one at least KCM;
 - It is preferable that said external signal is coupled to:-
 - one at least addressing means originating from one at least KCM; and/or
 - one at least ID fetch means originating from one at least KCM.
- Means to instruct a means coupled to one at least mechanical keys send ID means to key control means.
- Preferably a means for control means to provide power to mechanical key means.
- 30 The invention preferably allows for the method step of manufacturing LKM's wherein digitally stored information that may be coupled to one at least LKM's, is stored in electronic means. Said digitally stored information preferably represents one at least bit sequences that may be used to represent one at least ID Codes. Said digitally stored information preferably may have been incorporated into one at least LKM and/or may be available for incorporation in one at least LKM.
- 35 Preferably a means for control means to address one at least mechanical key means to perform localising function to facilitate key selection.
- The invention allows for the method step of transferring and/or copying part at least of the information stored within a first KCM to one at least second storage and/or processing means. Said second means preferably includes one at least second KCM and/or one at least user controlled data processing means (eg PC). Said transfer and/or copying may include the use of one at least WAN's (eg the Internet).
- 40 The invention preferably includes the method step of manufacturing said KCM and/or LKM.
- 45 The invention preferably includes the method step of manufacturing and/or distributing, and/or selling, and/or fitting a power source means for said KCM.
- It is a non-limiting preferable objective of the present invention to include the method and/or process of advertising and/or promoting one at least KCM and/or LKM.
- 50 • Said advertising may include television, cinema and printed matter as non-limiting examples.
- It is a preferred objective of the present invention to include the process and/or method, of ordering, and/or selling (that may include sale, and/or hire, and/or rental and/or leasing, as non-limiting examples) and/or exporting, and/or importing, and/or transporting:-
- 55 • from a first jurisdiction to one at least second jurisdiction, and/or from a first location to one at least second locations, of one at least KCM and/or LKM.
- 60 Preferred Embodiment of the Invention.

The following preferred embodiment of the invention in conjunction with the referenced drawings, may better assist the understanding of the invention.

- 5 The reader is referred to Figure One of the drawings that shows a non-limiting example of a key control means (1) (KCM) in the form of a key ring tag. Said tag is coupled to a key ring means (12), that in this example also forms an attachment for two keys (10a) and (10b). Coupled to said keys are Local Key Means (LKM) (11a) and (11b). It is preferable that key tags and/or keys are coupled to said key ring means in a manner that provides similar flexibility to key movement as does known art key rings.
- 10 Said key ring means is one non-limiting example of a Key Grouping Means (KGM) to group and/or couple one at least keys. The invention allows for the use of any known art KGM and those knowledgeable in the art should be able to adapt the means described for the present embodiment to those required for other KGM's. Furthermore, the number of keys and/or linked LKM's that may be coupled to one at least KGM is preferably not limited. Any one at least KGM may include one at least
- 15 keys that is not linked to one at least LKM and/or one at least keys that is linked to one at least LKM.
- The preferred method for a user to input information into said KCM is via microphone means (2) and/or keyboard means (8). Said keyboard means preferably includes one at least electromechanical switches (not shown).
- 20 The preferred method for said KCM to communicate with the user is via speaker means (3) and/or display means (7). Said display means preferably includes a LCD means.
- Said KCM preferably includes a KGM Linking Means to couple to said KGM. In the present embodiment hole (6) may be used for this purpose.
- 25 The preferred method for said KCM to communicate with one at least LKM's is the transfer (preferably bidirectional) of digital information. Said digital information is preferably transferred via wired means (13). Said wired means is preferably an electrically conductive means. Part at least of said wired means may be include fibreoptic and/or co-axial means. Said transfer preferably may include, in part at least, wireless means.
- 30 • For example, said KCM (1) may transmit digital information to one at least LKM's using I/R source (4) and LKM (11a) may receive said I/R information via I/R receiver (4a) and/or LKM (11b) may receive said I/R information via I/R receiver (4b). LKM's (11a) and/or (11b) preferably may transmit digital information to one at least KCM using I/R source (5a) and/or (5b). Said I/R information is preferably received by said KCM (1) using I/R detector (5). Part at least of said I/R means preferably may be replaced by R/F and/or Optical wavelength means.
- 35